IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

BEST MEDICAL INTERNATIONAL, INC., *Plaintiff*, v. ELEKTA, INC. AND ELEKTA LIMITED, *Defendants*.	Civil Action No.: 1:19-cv-03409-MLB

PLAINTIFF'S COMPILATION CLAIM CONSTRUCTION BRIEF

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INTRODUCTION

Plaintiff Best Medical International, Inc. ("Plaintiff" or "Best"), in an attempt to comply with the Scheduling Order (Dkt. 47, ¶ 12), provides Plaintiff's Compilation Claim Construction Brief. Best could not reach agreement as to the format and content of a proposed Joint Claim Construction Brief with Defendants Elekta, Inc. and Elekta Limited ("Defendant" or "Elekta") and, therefore, submits this Compilation on behalf of Plaintiff. Best and Elekta have agreed that they will each separately file and provide a basis for its submission.

Best believes that this Compilation serves the purpose and intent of the Scheduling Order, an order of the District of Delaware to meet the needs of that Court. Best further believes that the interests of this Court are met with the Compilation as set forth below, including a technology background (not expressly required or prohibited by the Scheduling Order), a statement of applicable law (not required in the Scheduling Order because of the volume of patent cases seen by that Court), and a section on the level of ordinary skill in the art (again, neither required nor prohibited by the Scheduling Order). The Compilation also meets the express requirements of the Scheduling Order in all other ways.

Elekta's brief, while incorporating many of the same components, eliminates and adds as exhibits the three sections Best offered above. Best submits that these

sections are appropriate and should be part of the main brief. For the above reasons, the Court should accept for consideration Best's Compilation. Best believes that the Court, in its discretion, may utilize both briefs and, as agreed with Elekta, the parties will make no request to strike the other party's submission.

1. Plaintiff's Opening (1/10/20)

Plaintiff Best Medical International, Inc. ("Best") submits the following Opening Claim Construction Brief pursuant to the Court's Scheduling Order. *See* Dkt. 47, ¶ 11. Best asserts four patents against Defendants Elekta, Inc. and Elekta Limited ("Defendants" or "Elekta"): U.S. Patent Nos. 6,038,283 ("the '283 Patent") (Dkt. 97-1), 6,393,096 ("the '096 Patent") (Dkt. 97-5), 7,266,175 ("the '175 Patent") (Dkt. 97-11), and 7,015,490 ("the '490 Patent") (Dkt. 97-8) (collectively, "the Patents-in-Suit").[1]

Best submits that no terms/phrases in the asserted claims of the Patents-in-Suit require formal construction and the plain and ordinary meanings of the terms/phrases should apply as they would have been understood by one of ordinary

[1] Best currently asserts the following claims (the "Asserted Claims") (noting claims from which a dependent claim depends in parens): '283 Patent, Claims 6(1), 7(1, 2), 10(1), 12(1, 2), 24(22), 25, 27(25), 28(25, 27), 34(33), 42(40), 46(40, 44); '096 Patent, Claims 18(1, 2), 21, 23(21), 31-33, 40(37, 38), 43-46; '175 Patent, Claims 1, 8(1), 11, 13, 19; '490 Patent, Claims 1, 4(1), 10, 17-19.

skill in the art. That is true, as here, where each term or phrase has a plain and ordinary meaning. *See Phillips v. AWH Corp*., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*).

Defendants, however, have proposed that the Court construe 23 different claim terms/phrases. That is surprising, because the same Defendants, in asking for Patent Office review of the same Asserted Claims in four IPR petitions[2] (one directed to each patent) have asked for the construction of only five terms, and all of those directed to two patents: (1) "total monitor units" **[9]** [3], (2) "segment count",[4] and (3) "[within an] optimizer" **[7]** in the **'175 Patent**, and (4) "radiation beam segment" and "segment" **[3]** and (5) "radiation beam arrangement" **[6]** in the **'490 Patent**.

The Court has the discretion to limit the number of claim terms that it will consider for claim construction purposes. *See, e.g.*, *Quest Integrity USA, LLC v.*

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[2] An IPR or *Inter Partes* Review is an administrative, adversarial proceeding before the Patent Office's Patent Trial and Appeal Board ("PTAB") that may test the validity of challenged claims of a patent on prior art grounds (as opposed to other bases of invalidity).

[3] Numbers in bracket correspond to the numbering used in the Joint Claim Construction Chart, Dkt. 97, Appendix A.

[4] Highlighting the inconsistencies in Defendants' positions in the Patent Office and before this Court, no request is made for a construction of "segment count" here.

Clean Harbors Indus. Servs., Inc., No. 14-1482-SLR, 2016 U.S. Dist. LEXIS 151588 (D. Del. Nov. 1, 2016); *Masimo Corp. v. Philips Elecs. N. Amer. Corp*., 918 F. Supp. 2d 277 (D. Del. 2013). For example, in the parallel case pending in the District of Delaware, the Court determined that the parties could propose no more than 10 terms for construction. *See Best Medical Int'l, Inc. v. Varian Medical Sys., Inc.*, 18-cv-01599, Dkt. 50 (oral order). In this case, the Court should limit construction to the same terms that have been proposed for construction at the Patent Office.

The remainder of the terms proposed by Elekta may become part of a tutorial for the Court or the jury, but are not necessary for purposes of determining the scope and meaning of any of the Asserted Claims. For example, Defendants propose terms for construction, including "provid[e/ing] control" [**1**], "continuum" [**2**], "beams eye view" [**4**], "to approach correspondence" [**11**], "lesser correspondence" [**12**], "greater correspondence" [**13**], "delivery efficiency" [**16**, **17**], and "conformity" [**22**]. Each of these terms/phrases has a plain and ordinary meaning requiring no construction by the Court. Moreover, each of the remaining terms/phrases is well known to those of ordinary skill in the art and requires no additional construction. These terms are "within an optimizer" [**7**], "monitor unit" [**8**], "total monitor units" [**9**], "limiting inflation of total monitor units" [**20**], "a

cost function" [**10**], "partial volume data" [**14**], "beam weights" [**15**], "dosimetric fitness" [**18**], "intensity map(s)" [**19**], "collimator angle" [**21**], and even "a maximum effective length for a multi-leaf collimator leaf pair of the plurality of multi-leaf collimator leaf pairs having the maximum effective length" [**23**].

Defendants' proposed constructions further underscore why no construction should be performed. Elekta simply rephrases the claim language, often offering by way of "construction" a more difficult to parse set of terms/phrases that will in no way aid the jury or the Court in delving into the subject matter of the Patents-in-Suit and the Asserted Claims. For that reason, no construction should be made.

In the event that the Court determines that one or more of the terms/phrases requires construction, Best offers alternative constructions as evidenced by the Joint Claim Construction Chart (Dkt. 97, App. A) and set out below.

2. Defendant's Opening (2/14/20)

Pursuant to the Scheduling Order of July 15, 2019 [Dkt. 47, ¶¶11-12] and Appendix A of the Parties' Joint Claim Construction Statement of December 20, 2019 [Dkt. 97] ("JCCS"), Defendant Elekta, Inc. ("Elekta") provides its positions regarding the proper constructions of the disputed terms identified in the JCCS.[5]

[5] Elekta notes that the parties are discussing and may agree on the construction for terms 14, 15, 18, 20, and 22 in the JCCS, so Elekta does not address these terms

Elekta contends that these terms require construction to address meaningful differences in the parties' interpretation of the terms, as revealed by the positions of each party on infringement and validity, and/or in order to resolve ambiguities in the highly technical language of the asserted patents.

In its Opening Brief ("Op. Br."), Plaintiff Best Medical International Inc. ("BMI") improperly limited its discussions to just four of the disputed terms in the JCCS. Although BMI maintains that "plain and ordinary meaning" applies to all of the terms, BMI fails to identify what that meaning is or explain why such a meaning should be adopted by the Court. BMI's position is improper because its "reliance on a term's 'ordinary' meaning does not resolve the parties' dispute." *See O2 Micro International, Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008). "When the parties present a fundamental dispute regarding the scope of a claim term, it is the [District] court's duty to resolve it." *Eon Corp. IP Holdings LLC v. Silver Spring Networks, Inc.*, 815 F.3d 1314, 1318 (Fed. Cir. 2016).

Elekta's proposed constructions are consistent with accepted canons of claim

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here. Elekta reserves the right to respond to any arguments that BMI presents on these terms should the parties not reach agreement. Also, Elekta has revised some of its previously proposed constructions, as shown in Exhibit M.

construction, and define the meaning and scope of the disputed claim terms from the perspective of one of ordinary skill in the art at the time of the invention, taking into account their use in the claims, written description and prosecution history of the pertinent asserted patent. BMI's proposed constructions, in contrast, are pulled from thin air without any support in the intrinsic evidence. Moreover, BMI's proposed constructions fail to recognize that the patentee can be its own lexicographer and disavow claim scope, and that a term as used in one patent may have a different meaning when used in another patent. *Sumitomo Dainippon Pharma Co. v. Emcure Pharms. Ltd.*, 887 F.3d 1153, 1157 (Fed. Cir. 2018).

BMI's disregard for the legal canons of claim construction, combined with its delayed and incomplete provision of proposed constructions, is prejudicial to Elekta and unnecessarily burdens the Court. *See, e.g., Sucampo, AG, et al. v. Dr. Reddy's Laboratories, Inc., et al.*, D.N.J CA 3:14-cv-07114, Letter Order [Dkt. 52] (March 4, 2016). Elekta respectfully maintains that the Court should adopt the constructions presented by Elekta.[6]

3. Plaintiff's Reply (2/28/20)

Throughout Elekta's Responsive Claim Construction Brief ("Response"),

[6] If BMI wanted to challenge Elekta's proposed constructions for these terms, BMI should have provided its arguments in its Opening Claim Construction Brief.

Elekta offers unsupported attorney argument regarding how a person of ordinary skill in the art ("POSA"), would understand supposedly complex claim language. When Elekta presented IPR petitions to the Patent Office, only five of the twenty-three terms they now present were deemed to require construction. Yet, all of the terms that Elekta wants construed have unambiguous plain and ordinary meanings to a POSA.

In its Response, Elekta takes issue with the fact that Best stated its position on ***all*** terms Elekta proposed for construction, namely that all of the terms that Elekta proposed should not be construed and would be understood by a POSA to have a plain and ordinary meaning. After that, regardless of Elekta's litigation position, it is for Elekta to state ***why*** any of these terms need construction. In *Eon Corp IP Holdings LLC v. Silver Springs Network, Inc*., the Court noted where there is an "actual dispute," the Court should resolve it. 815 F.3d 1314, 1319 (Fed. Cir. 2016) (citing *02 Micro Int'l, Inc. v. Beyond Innovation Tech. Co*., 521 F.3d 1351 (Fed. Cir. 2008)). But here, the disputes are not actual, but strategic. The Response uses a lot of words that try not to define claim terms, but rather seeks to add narrowing limitations to straight forward terms. This is all done as a way to narrow the overall claim scope and potentially have Elekta's products and actions taken outside the scope of infringement. For the reasons below, that is not the

proper goal of claim construction.

Elekta provides a curious and inaccurate footnote in its Response (p. 1, n.1) that misrepresents where the Parties stood. At the time of the Response, Best had already made clear that with respect to terms [14], [15], and [20], the Parties had *not* reached agreement. Nevertheless, Elekta then gave itself more runway to "respond to any arguments that [Best] presents on these terms." *Id.* The time for Elekta to address those terms passed, and the plain and ordinary meaning for each should apply.

Best briefed only the terms that Elekta proposed for construction in the pending Elekta-initiated IPRs. Best affirmatively addressed those terms.

As for the remaining seven claim terms, Best answers Elekta's opening salvos below, and re-states that the terms should *all* be given their plain and ordinary meaning. If the Court determines that one or more of the terms/phrases requires construction, Best offers alternative constructions as evidenced by the Joint Claim Construction Chart (Dkt. 97, App. A) and set out below.

4. Defendant's Sur-Reply (3/13/20)

[None.]

I. BACKGROUND TO THE PATENTS-IN-SUIT

1. Plaintiff's Opening (1/10/20)

A. The Parties and the Patents-in-Suit

Best is a healthcare company engaged in research, development, marketing, and selling of medical devices, including devices for use in internal and external radiotherapy treatments to treat cancerous tumors and other cancers. Among products offered by Best is CORVUS®, an external beam radiotherapy treatment planning system, literally the brains behind radiotherapy treatments, that is operably integrated with machines called linear accelerators or LINACS for treatment planning and delivery. Best's CORVUS system, together with its ActiveRx modules, embodies the technologies of the Patents-in-Suit. Dkt. 9, ¶6.

Defendants collectively make up one of the largest manufacturers and sellers of LINACs in the world. Defendants' LINAC product offerings utilize the Defendants' MONACO® treatment planning system to power the treatment of tumors in patients based on the technologies of the Patents-in-Suit, the incorporation of which enhances the performance and capability of Defendants' MONACO treatment planning system. Dkt. 9, ¶15.

Best is the owner of the Patents-in Suit. Dkt. 9, ¶¶2-5. These patents generally relate to the field of external beam radiotherapy, including the optimization of treatments associated with such radiotherapy. The '283 Patent and '096 Patent teach products and methods for optimizing radiotherapy treatments,

including using so-called partial volume data concerning dose prescription and other information about the targets and surrounding structures that will be bathed in potentially harmful radiation to generate radiation beam arrangements that will instead accurately and safely target tumors and spare healthy tissues and organs. *Id*. at ¶28. However, in addition to the benefits of optimization, practitioners soon realized that the process of optimizing beam arrangements can have certain drawbacks as well – *e.g.*, more time for planning as the analysis of the optimum solution takes time. The inventor of the '175 Patent recognized this and provided new methods that allow users to determine an appropriate trade-off between optimization of the dose (such as by the '283 and '096 Patent technologies) and delivery efficiency of the radiation beams or beamlets. The '490 Patent takes optimization further, looking to optimize the angle of the multileaf collimators or MLCs used in radiotherapy treatment not only to conform the radiation beam to the tumor target shape, but also with an understanding of the time for treatment.

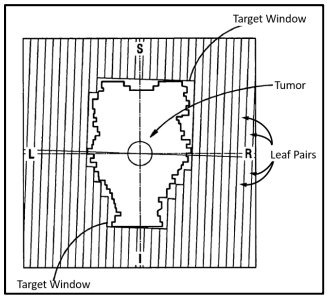
B. The Technology of the Patents-in-Suit

Best will provide the Court, at or before the time of filing of the parties' Joint Claim Construction Brief, a technology tutorial pursuant to ¶10 of the Scheduling Order. Dkt. 47, ¶10. A limited technology overview is provided below.

1. Radiotherapy Devices

Radiotherapy treatment generally involved using a LINAC to direct a beam of radiation, typically x-rays or electrons, at the tumor from outside the body. The radiation beam travels through the body to deliver radiation to the cancerous cells within the tumor without the need for any physical invasion of the body by surgery, while leaving healthy cells in organs and tissues surrounding the tumor, referred to as "Organs at Risk" or "OARs," intact. A typical LINAC radiotherapy treatment is shown in Figure 1 of the '283 Patent. *See* Dkt. 97-1 at p. 4.

Radiotherapy devices must be able to shape the radiation beam to effectively treat the patient. Radiotherapy instruments utilize an apparatus called a multileaf collimator, or MLC, that allows the shape of the beam to be formed so as to closely mirror the shape of the tumor within the body. An example of an MLC that has been adjusted to provide a target window that closely mirrors the shape of a tumor is set forth in the figure below. *See* Dkt. 97-8, Fig. 1, at p. 4.



To further assist the MLC in creating the desired opening shape, the MLC is

often rotatably mounted on the radiotherapy instrument.

2. Radiotherapy Treatment Plans

In radiotherapy, the treating physician develops a radiation treatment plan that dictates how much radiation should be delivered to each localized region of the tumor to cause cell death, and the acceptable amount of radiation that the OAR can experience without being adversely affected.

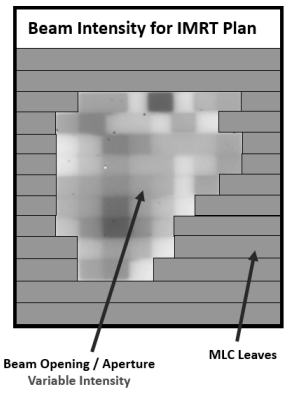
Early treatment plans simply determined the radiation dose that should be delivered using an image representing a single cross-sectional plane of the patient. The plan was evaluated by visually examining the two-dimensional dose distribution that would be achieved by delivering a radiation beam through a beam aperture from that angle. This relatively unsophisticated treatment planning method is often referred to as 2D Treatment Planning. As the field progressed, 3D Treatment Planning became the norm, which involved determining a treatment plan based on the complete set of three-dimensional images of the tumor within the patient's body. Though this represented an improvement over 2D Treatment Planning, it still involved a rather unsophisticated method of determining suitability of the plan, which involved trial and error. Typically these 2D and 3D Treatment Plans deliver a uniform beam intensity across the entire field such that the entirety of the target window is exposed to the same amount of radiation.

As the field continued to progress, Intensity Modulated Radiation Therapy ("IMRT") was developed, in which the intensity of the beam being delivered to different parts of the field can be altered to vary the amount of radiation that is delivered to different areas of the field. To accomplish this, the shape of the opening in the MLC can be adjusted in a stepwise ("step and shoot") or continuous ("sliding window") fashion during radiation therapy to ensure that certain areas of the field receive more radiation than other areas. This results in relatively complex treatments that involve repeated reconfiguring of the leaves of the MLC.

Because of this added complexity, treatment planning for IMRT is typically performed by a treatment planning system ("TPS"), including a computer incorporating an optimization algorithm in a process called "IMRT Inverse Treatment Planning." In IMRT Inverse Treatment Planning, the treating physician provides a radiation dose prescription which specifies the dosage of radiation that every portion of the tumor should receive. The prescription will also dictate dose limits for the OARs in the vicinity of the tumor. The TPS incorporating the optimization algorithm then determines the combination of thousands of small beams of radiation (often referred to as "beamlets") that best fulfills the requirements of the prescription.

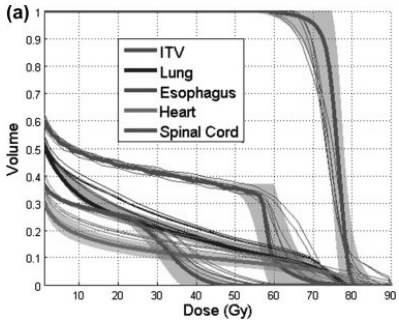
To accomplish this, Inverse Treatment Planning systems often, as a first

step, divide the radiation beam into a checkerboard-like grid to provide an "intensity map" or a "fluence map." An example of an intensity map is shown in varying grayscale representing intensity variation in the figure below:



Each square in the checkerboard is used by the TPS inverse planning optimization algorithm to control how much radiation will pass through to the patient in that square. In the second step of optimization, the intensity map is converted from a mathematical grid representation into a combination of MLC beam shapes (called "control points" or "segments") that the LINAC can actually deliver to the patient through repeated movement of the leaves or "leaf sequencing" of the MLC.

For any treatment plan that is developed, the amount of radiation that is to be delivered to the tumor and to surrounding tissues can be quickly visualized via a cumulative dose volume histogram ("CDVH"), like that below.



In a CDVH, the horizontal axis typically shows the radiation dosage, while the vertical axis typically shows the percent volume of the given tissue that is receiving that dosage.

As this demonstrates, IMRT treatment plans are quite complex and include a large number of possible variables that can be considered, adjusted, and/or weighted. Generally, the "best" plan to use depends on what parameters the operator seeks to maximize versus what parameters he/she seeks to minimize, *i.e.*, the "cost" of the treatment. Thus, the algorithm employed by the TPS to identify the treatment plan that will be used is referred to as a "cost function" that often seeks to minimize the value of a less desired parameter while maximizing a desired parameter – the "cost" attributable to such allocation.

2. Defendant's Opening (2/14/20)

[None.]

II. APPLICABLE LAW

1. Plaintiff's Opening (1/14/20)

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips*, 415 F.3d at 1312 (*quoting Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 90 F.3d 1111, 1115 (Fed. Cir. 2004)). The Supreme Court has held that, like the construction of other written instruments, the interpretation of claim terms is a matter of law and is exclusively within the province of the court. *See Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372, 388 (1996).

The determination of patent infringement is a two-step process: the first step is to determine the meaning and the scope of the patent claims that are alleged to be infringed; the second step compares the properly construed claims to the accused device. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1581-82 (Fed. Cir. 1996); s*ee also Read Corp. v. Portec, Inc.*, 970 F.2d 816, 821 (Fed. Cir. 1992).

In the Federal Circuit *Markman* decision, the *en banc* Court held that there were three sources that should be considered to determine the meaning of claims: (1) the claims themselves, (2) the specification, and (3) the prosecution history. *Markman v. Westview Instr. Inc*., 52 F.3d 967, 979 (Fed. Cir. 1995) (*en banc*), *aff'd.* 517 U.S. 370 (1996); s*ee generally Phillips*, 415 F.3d at 1314-1318. These are the so-called intrinsic evidence of claim meaning. *See Vitronics*, 90 F.3d at

1582. "In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a claim term. In such circumstances, it is improper to rely on extrinsic evidence." *Id.* at 1583.

The words of a claim "are generally given their ordinary and customary meaning." *See Phillips*, 415 F.3d at 1312. That meaning is the meaning that term would have "to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1313. *See also Innova*, 90 F.3d at 1116. The claims are to be given their ordinary meaning to those skilled in the art, unless the intrinsic evidence shows that the inventor used them differently. *See Karlin Tech., Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 971 (Fed. Cir. 1999). For example, a patent applicant may act as his or her own lexicographer and give a term a defined meaning that might be different from its plain and ordinary meaning. *See Phillips*, 415 F.3d at 1316.

Courts should depart from the plain and ordinary meaning only when it is necessary to give meaning to a claim term so as to facilitate delineating the outer bounds of claim scope. *See Intervet Inc. v. Merial Ltd.*, 617 F.3d 1282, 1287 (Fed. Cir. 2010); *see also Phillips*, 415 F.3d at 1316-17. Courts frequently caution that it is generally improper to read a limitation from the specification into the claim. *See Microsoft Corp. v. Multi-Tech Sys.*, 357 F.3d 1340, 1347 (Fed. Cir. 2004). At the

same time, courts note that "claims must be read in view of the specification, of which they are a part," which can sometimes require importing limitations found in the specification beyond what the plain language of the claim would suggest in isolation. *Id.* Yet, "[c]onstruing the claims in light of the specification does not [] imply that limitations discussed in the specification may be read into the claims. It is therefore important not to confuse exemplars or preferred embodiments in the specification that serve to teach and enable the invention with limitations that define the outer boundaries of claim scope." *Intervet*, 617 F.3d at 1287.

In interpreting an asserted claim, the intrinsic evidence of record is to be considered before extrinsic evidence because it is the most significant source of the legally operative meaning of the claim language. *See Vitronics*, 90 F.3d at 1582. In considering the intrinsic evidence, the words of the claims are examined first to define the scope of the patented invention. *Id.* Then, the specification is reviewed, as it is the single best guide to the meaning of a disputed term. *Id.* If in evidence, the prosecution history may then be considered as it often has critical significance in determining the meaning of the claims. *Id.*

In construing the terms of a claim, "the focus is on the objective test of what one of ordinary skill in the art at the time of the invention would have understood the term to mean." *Markman*, 52 F.3d at 986. "Properly viewed, the 'ordinary

meaning' of a claim term is its meaning to the ordinary artisan after reading the entire patent." *Phillips*, 415 F.3d at 1321. "In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Id.* at 1314.

Where a claim term "has no specialized meaning to persons of skill in the art . . . the ordinary meaning of those words to those skilled in the art controls, unless the evidence indicates that the inventor used them differently." *See Karlin,* 177 F.3d at 971; *Hoganas AB v. Dresser Indus., Inc.*, 9 F.3d 948, 951 (Fed. Cir. 1993) (holding that a claim term takes on its ordinary meaning where one skilled in the art would not have been put on notice that the term meant otherwise); *see also Bondyopadhyay v. United States*, 748 Fed. App'x 301, 307 (Fed. Cir. 2018); *Trimr, LLC v. Perfectshaker, Inc.*, 2019 U.S. Dist. LEXIS 185796, *6-7 (D. Del. Oct. 28, 2019). Thus, unless otherwise compelled, a court is to give full effect to the ordinary and accustomed meaning to claim terms. *Johnson Worldwide Associates, Inc. v. Zebco Corp.* 175 F.3d 985, 989 (Fed. Cir. 1999).

In determining a term's ordinary meaning, a court may consult both general and technical dictionaries to aid it in its construction efforts. *See Vitronics*, at 1584

n.6; *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1578 (Fed. Cir. 1996). The court "may rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the [intrinsic evidence]." *Phillips*, 415 F.3d 1322-23 (quoting *Vitronics*, 90 F.3d at 1584 n.6).

Apart from the literal language of the asserted claims, the presence of additional claim limitations provided in dependent claims may impact a term's meaning. For example, independent claims are presumed to have broader scope and fewer limitations than a claim that depends from the independent claim. *See Wenger Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001). Thus, "the presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim." *Liebel-Flarsheim Co. v. Medrad Inc*., 358 F.3d 898, 910 (Fed. Cir. 2004). Similarly, claim constructions should give meaning to every term or limitation in a claim. Thus, claim constructions should not render other limitations within a claim superfluous. *Merck & Co., Inc. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005).

If the court's analysis of the words of the claims, the patent specification and the prosecution history (*i.e.*, the intrinsic evidence) fails to yield any conclusive

construction results, the court may then consult extrinsic evidence, such as dictionary definitions, expert testimony, testimony of those skilled in the art, and prior art, to aid in its construction efforts. *Vitronics*, 90 F.3d at 1584. Extrinsic evidence may also be used to help the court understand a certain technology at issue or to determine the scope or meaning of technical terms in a patent's claims. *See Hoechst Celanese Corp. v. BP Chemicals Ltd.*, 78 F.3d 1575, 1579 (Fed Cir. 1996).

2. Defendant's Opening (2/14/20)

[None.]

III. LEVEL OF ORDINARY SKILL IN THE ART

1. Plaintiff's Opening (1/10/20)

Best proposes a person of ordinary skill in the art is an individual who has earned at least a master's or doctoral degree in radiation dosimetry, physics, medical physics, or medicine, or equivalent disciplines, and has three years of clinical experience in radiation treatment planning. A person may also qualify as a person of ordinary skill in the art with (1) more formal education and less technical or professional experience in such disciplines or (2) less formal education and more technical or professional experience in such disciplines.

2. Defendant's Opening (2/14/20)

[None.]

IV. AGREED-UPON CONSTRUCTIONS

The parties have agreed to the following constructions of the following claim terms:

- "**Biological Uniform Structure**" ('283 Patent; '096 Patent) means "a biological structure for which all portions perform the same function."
- "**Biological Polymorphic Structure**" ('283 Patent; '096 Patent) means "a biological structure for which each portion serves a distinct function."
- "**local optimization algorithm**" ('175 Patent) means "an algorithm that may identify a local maximum or minimum value rather than the absolute maximum or minimum value."
- "**global optimization algorithm**" ('175 Patent) means "an algorithm that seeks to identify the absolute maximum or minimum value."
- "**delivery efficiency**" ('175 Patent; '490 Patent) means "a measure of time required to administer a radiation therapy."
- "**a maximum effective length for a multi-leaf collimator leaf pair of the plurality of multi-leaf collimator leaf pairs having the maximum effective length"** [23] ('490 Patent) means "the effective leaf travel distance of the multi-leaf collimator leaf pair having the maximum effective leaf travel distance of all the multi-leaf collimator leaf pairs."

The parties also agree that the following claim terms may be given their plain and ordinary meaning:

- "**continuum**" ('175 Patent)

- "**dosimetric fitness**" [18] ('175 Patent)
- "**limiting inflation**" [20] ('175 Patent)
- "**conformity**" [22] ('490 Patent)

The parties further agree that the following claim terms need not be construed:

- "**continuum**" [2] ('175 Patent)
- "**beams eye view**" [4] ('175 Patent)
- "**delivery efficiency**" [16] ('175 Patent)
- "**delivery efficiency**" [17] ('490 Patent)

V. DISPUTED CONSTRUCTIONS

1. Plaintiff's Opening (1/10/20)

Elekta seeks to construe 23 terms/phrases. Best's view is that none of these require construction. However, if the Court determines that one or more of the terms/phrases requires construction, Best offers alternative constructions as evidenced by the Joint Claim Construction Chart (Dkt. 97) and as set out below. Moreover, Best suggests that the Court limit any construction to the four terms/phrases below, the only ones presented to the Patent Office. For all other terms, Best will provide its response in opposition.

2. Defendant's Opening (2/14/20)

Despite lengthy meet and confer efforts to identify the claim terms in dispute

and reach agreement on their construction, BMI improperly asserts that all claim terms should be accorded their "plain and ordinary meaning," even for the terms it specifically discussed in its Opening Brief. Because there is a dispute as to their meaning, the Court should construe these terms as proposed by Elekta, for the reasons provided below. *See Eon Corp. IP Holdings LLC*, 815 F.3d at 1318.

A. "provide[e/ing] control" [1] (Ex. A)

1. Plaintiff's Opening (1/10/20)

[None.]

2. Defendant's Opening (2/14/20)

[1] provide[e/ing] control (*'175*) (JCCS at 1) (Ex. K)

Elekta's Construction	BMI's Construction
provide[e/ing] control ('175 patent)	
enabling user control	*Plain and ordinary meaning.* No alternative construction.

Elekta sets forth below its positions for a term for which BMI did not provide any construction or arguments. BMI's "plain and ordinary meaning"

should be rejected in favor of Elekta's proposed construction based on the patent and its prosecution history.

Elekta's construction of "***provid[e/ing] control***" takes into account the Applicant's repeated clarification as to the scope and meaning of this term during prosecution of the '175 patent. BMI's assertion that this term should be construed as "plain and ordinary meaning" ignores the particularized meaning ascribed to this term during prosecution, and provides the Court and Elekta no measure as to what BMI believes to be within the scope of this claim term.

The '175 patent makes clear that its methods are directed to "enabling" or "providing" for "user control" of a tradeoff. '175 patent at 1:35-38 ("enabling user control of a tradeoff . . . .."); 1:29-32, 1:38-49 ("[D]esirable to provide user control of the tradeoff. . . ."); 2:49-51 ("The first method of providing the desired user control comprises . . . ."); 4:6-8 ("Use of the first and second described methods will enable nearly continuous control of the tradeoff . . . "); 4:23-26 (". . . the first two methods will be generally superior for providing user control, the third method may still provide some benefit in providing user control.")

The Applicant also pointed to "user control" to distinguish the claims from the prior art during prosecution, repeatedly asserting that the cited prior art did not "enable user control." *E.g.* Aug. 2006 Response at 2, 14; Jan. 2007 Response at 9;

Carol Decl. at ¶6a4, ¶6d3. The Applicant asserted that its claimed invention was the first provision of "user control" over the tradeoff between delivery efficiency and dosimetric fitness. Carol Decl. at ¶6a3 ("[t]he impetus for the ['175] patent was to propose for the first time the concept of giving the user the ability to control directly on a patient-by-patient basis the competing needs of conformality / avoidance (dosimetric fitness) and efficiency."); Jan. 2007 Response at 8-9.

The Applicant even explained how to achieve this "user control" with a slider or the like, noting that the claimed inventions . . .

> give[] the user the ability to indicate the relative importance of this term as compared to dosimetry fitness, i.e., through the use of a GUI slider bar or other interface known to those skilled in the art, enabling user control of the trade-off between dosimetric fitness (cost) and delivery efficiency (cost) across a continuum."

Jan. 2007 Response at 11; Carol Decl. at ¶ 6a4. Thus, "providing control" should be construed to mean "enabling user control," as proposed by Elekta.

3. Plaintiff's Reply (2/28/20) "provide control" [1]

Best provided no alternative construction because the term *provide control* is well known and certainly has a plain and ordinary meaning to a POSA, much less to someone not necessarily skilled in the art. Elekta's construction of *provide control* is simply a rephrase of "provide" with "enable" and then adding "user," a term that is not required by the definition and not necessary unless required by the

claim language. This is another example of Elekta adding language to limit a term and potentially limit the scope of a claim.

For example, in Claim 11 of the '175 Patent, the preamble of the patent is the home for the term "providing control." *See Dkt. 97-11, Claim 11.* The rules of claim construction state that the preamble should not be used to limit the claim in most instances, except where the preamble gives "life and meaning" to the claim that is not otherwise present. *See In re Rockwell*, 150 F.2d 560, 562 (C.C.P.A. 1945). Best suggests that for Claims 11, 13, 18, and 19, "providing control" does not have any limiting power and therefore should not be construed. But moreover, in Claim 11 for example, a "user" is expressed – where the algorithms are used "responsive to a user selection." The patent applicants thus understood how to use the word "user" when they wanted to so limit the claims. They did not do so when using the term *provide control*.

4. Defendant's Sur-Reply (3/13/20)

BMI argues that *provid[e/ing] control* be given an (unspecified) plain and ordinary meaning and criticizes Elekta's construction for adding "user." Reply Br. at 19. As explained earlier, however, the only "control" described in the patent is "user control," and the patentee gave up any broader scope by distinguishing the prior art during prosecution as not having "user" control. Resp. Br. at 28-30; *Festo*

Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722, 737 (2002).

BMI also argues, for the first time, that the term is not limiting for asserted claims 11, 13, and 19 because it appears only in the preambles and does not give "life and meaning" to the claims. Reply Br. at 20. Not so. The applicant's reliance on this language during prosecution to distinguish the claimed invention from the prior art "transforms the preamble into a claim limitation." *Catalina Mktg. Int'l v. Coolsavings.com, Inc.,* 289 F.3d 801, 808-09 (Fed. Cir. 2002).

B. "radiation beam segment" and "segment" [3] ('490 Patent, Claims 1, 4, 10, 17) (Ex. B)

1. Plaintiff's Opening (1/10/20)

Best views the term "radiation beam segment" and "segment" to be well-understood terms that have a plain and ordinary meaning to those of ordinary skill in the art. Best conjectures that there is no dispute about the "radiation beam" part of the term, and that the real issue (to Defendants) relates to "segment." But even that term, by itself, is clear – a portion of something. In this case, a portion of the radiation beam. The Abstract of the '490 Patent makes this clear: "The user can preferentially either selectively enhance delivery efficiency of the radiation beam

arrangement, reducing a number of *radiation beam segments* and reducing a number of radiation beam monitor units required for delivery of the desired prescription, or selectively enhance conformity of the radiation beam arrangement to a target shape." '490 Pat., Abstract (Dkt. 97-8, at p. 2) (emphasis added). To the extent any construction is needed, Best has offered the following alternative: "one of the segments in a radiation treatment plan or portion thereof."

Defendants' proposed construction – "a portion (or a plurality of portions) of a radiation beam arrangement" – creates new definitional problems rather than resolving the one they asked the Court to address. First, nothing in the intrinsic evidence suggests the "portion (or a plurality of portions)" or even makes clear what that means. Second, Defendants have offered "radiation beam arrangement" as a term that they do not understand and believe requires construction. Best disagrees with that proposition as well. Indeed, when placed together with the proposed construction in the following section, the Court will see that Elekta's constructions are circular. Defendants' proposed construction should be rejected.

2. Defendant's Opening (2/14/20)

[3] radiation beam segment / segment ('490)
(JCCS at 3) (Ex. C)

Elekta's Construction	BMI's Construction
radiation beam segment / segment ('490)	
a portion of a radiation beam	*Plain and ordinary meaning*. If a construction is required, in the alternative: *one of the segments in a radiation treatment plan or portion thereof*

The '490 patent specification uses the words "***segment***" and "***radiation beam segment***" without explicitly defining these terms.

The '490 patent and its claims recite: a "radiation beam arrangement having a plurality of radiation beam segments to apply radiation to a tumor target[.]" '490 patent at 2:24-26, 3:62-65; Ex. C at 1, 10, 17.1. Thus, the patent and claims indicate that a radiation beam segment is a part of a radiation beam arrangement.

The '490 patent further explains that "segments" and "radiation beam segments" are segments of the radiation beam, not (for example) segments of a treatment plan. According to the claims, the collimator of the invention has "a plurality of . . . leaf-pairs for closing portions of the opening to form a radiation beam arrangement having a plurality of segments." Ex. C at 1, 10, 17.1;'490 patent at FIG. 17, 5:48-49. U.S. Patent 5,596,619 ("'619 patent"), which is incorporated by reference, further explains, "[T]he rectangular cross-sectional configuration of

the . . . radiation treatment beam [] is separated into a plurality of radiation beam segments 510-514." '619 patent at 11:49-52; Fig. 4; '490 patent at 1:16-22.

BMI admits that a "radiation beam segment" is a portion of the radiation beam, as proposed by Elekta. Op. Br. at 18. But its construction is much broader. Because BMI's construction lacks support in the patent and also does not explain the meaning of "segment," it should be rejected.

3. Plaintiff's Reply (2/28/20)

Elekta correctly notes the terms are not expressly defined, specifically because the terms require no definition to make them clear to a POSA. Rather, Elekta's construction suggests that *segment* described is somehow (not explained) a portion of a radiation beam arrangement rather than a portion of a plan. That is not the case. A *segment* relates to the manner in which the intensity of the dose is modulated in IMRT using MLC leaf-pairs, which is described at pages 8-10 in the Technology Background of the Opening. A *segment* is used to build the intensity maps that are then accumulated to develop the dose distribution. By reducing the number of segments, the plan can be made more efficient. The '490 Patent states that "the maximum number of segments in a beam is largely determined by the MLC leaf pair which performs the maximum number of segments." *Dkt. 97-8, col. 6, ll. 35-41*. This is not a statement that a segment is a portion of a radiation beam,

but rather a portion of a treatment plan.

Elekta further confuses the issue by arguing that a description from another patent, U.S. Patent No. 5,596,619, demonstrates that a *segment* is a portion of a radiation beam, not a portion of a plan. That is incorrect. Rather, a segment is the position of opening or closing the leaf-pairs of the MLC to form a desired shape and to build the radiation intensity delivered. The entire purpose of the '490 Patent is to address efficiencies in the treatment plan overall, and the minimization of the number of segments, *i.e.*, well-known in the art and set forth in Best's alternative definition "one of the segments in a radiation treatment plan or a portion thereof." Nothing that is in the Elekta brief suggests otherwise.

4. Defendant's Sur-Reply (3/13/20)

There is nothing in the '490 patent to support BMI's assertion that a *radiation beam segment* is "a portion <u>of a plan</u>." Rather, a *radiation beam segment* is a portion <u>of a beam,</u> as defined in the '619 patent, incorporated by reference into the '490 patent. '619 patent at 11:49-12:3; *see also* Figs. 4, 5 (showing the "portion, or segment" 531 of the tumor through which "segment" 510 of the beam passes); '490 patent at 1:16-22. BMI's argument further suffers from its reliance on the '490 statement that "the maximum number of segments ***<u>in a beam</u>*** is largely determined…" (emphasis added). Reply Br. at 4; '490 patent at 6:35-41. As the

plain text shows, a segment is in a beam, not part of a plan. The remainder of BMI's argument (including the reference to pp. 8-10 of its Technology Background) is pure attorney argument as to the state of the art and not supported by the '490 specification or any evidence of record. *Gemtron Corp. v. Saint-Gobain Corp.*, 572 F.3d 1371, 1380 (Fed. Cir. 2009) ("[U]nsworn attorney argument . . . is not evidence."); *Enzo Biochem v. Gen-Probe, Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005) ("Attorney argument is no substitute for evidence.").

C. "radiation beam arrangement" [6] ('490 Patent, Claims 1, 4, 10, 17, 19) (Ex. C)

1. Plaintiff's Opening (1/10/20)

A "radiation beam arrangement" is such a basic element of the art of all of the Patents-in-Suit that it is surprising that Defendants contend that the phrase needs to be construed. In any context, including in the context of the '490 Patent, a "radiation beam arrangement" is what it says – an arrangement of radiation beams and/or the weights or intensities of those beams, here, as those beams may be shaped or formed by a multi-leaf collimator. To the extent any construction is required, Best offers the following alternative: "arrangement of radiation beams and/or beam weights."

The problem with Defendants' proposed construction is that it is circular

(referring back to "radiation beam segment") and addresses something that is outside the term itself, namely the idea of "given radiation delivery angle (gantry angle) of a multi-leaf collimator (MLC)." Elekta tries to limit the meaning of a well-understood term by adding new elements that do not appear in the phrase language, namely gantry angles. Judging by the intrinsic evidence cited, Defendants appear to argue that its interpretation of an embodiment should otherwise limit the term. *See* '490 Patent, 2:20-33 (Dkt. 97-8, at p. 14) ("in embodiments of the present invention …"). The law is clear that embodiments should not be read to limit the scope of a claim. *See Intevet,* 617 F.3d at 1287; *Microsoft Corp*., 357 F.3d at 1347. For at least these reasons, Defendants' proposed construction should be rejected.

2. Defendant's Opening (2/14/20)

[5] beam arrangement / radiation beam arrangement
(*'283, '096, '175 patents*) (JCCS at 7)
[6] radiation beam arrangement
(*'490 patent*) (JCCS at 12) (Ex. B)[7]

[7] For each group of identified claim terms, Elekta provides a chart that has the language of the asserted claims (and any non-asserted claims from which they depend) for each asserted patent. All occurrences of the identified claim terms are shown in **boldface**. These charts show how the identified term is used in the claim, and which asserted claims would be affected by construction of the term.

Elekta's Construction	BMI's Construction
beam arrangement / radiation beam arrangement (*'283, '096, '175*)	
a treatment plan that includes either the beam positions around the treatment field or the array of beam weights, or both	*Plain and ordinary meaning*. If a construction is required, in the alternative: *arrangement of radiation beams and/or beam weights.*
radiation beam arrangement (*'490*)	
an arrangement of radiation beam segments at a given radiation delivery angle	*Plain and ordinary meaning*. If a construction is required, in the alternative: *arrangement of radiation beams and/or beam weights.*

BMI's proposals for the terms "***beam arrangement***" and "***radiation beam arrangement***," as used in the '283, '096, and '175 patents,[8] and "***radiation beam arrangement***" as used in the '490 patent, improperly ignore the express definitions given these terms in the '283, '096 and '175 patents,[9] as well as the distinct, particular meaning attached to "radiation beam arrangement" in the '490 patent that is different than that used in the other three patents.

[8] All documents cited in this brief by Elekta are identified fully in Exhibit Q. For ease of reference and readability, only the shorthand citations (as provided in Exhibit Q) are used in the text, together with citations to the page number of the document.

[9] The claims of the '096 and '175 patent use the terms "beam arrangement" and "radiation beam arrangement" interchangeably whereas the '283 claims exclusively recite the "radiation beam arrangement" version of this term.

According to the ’283 and ’096 patents, radiation therapy treatment plans could include multiple radiation “beams,” each delivered at a constant intensity from a different position around the patient. ’283 patent at 1:27-34; ’096 patent at 1:27-34. In addition, it was known to “vary the intensity of the radiation beam across the surface of the tumor,” for example, “[t]he beam intensity of each radiation segment” could be modulated so that it was greater where the tumor was thicker. ’283 patent at 2:9-21; ’096 patent at 2:9-21. Such modulation could be accomplished by “attenuating leaves, or shutters, in a rack positioned within the radiation beam” that create “a plurality of radiation beam segments.” ’283 patent at 2:41-52; ’096 patent at 2:41-52.

The claim construction issue is whether, for the various asserted patents, the “beam arrangement” includes multiple beam positions as well as the modulated intensities within a particular beam.

The ’283 patent explicitly defines “beam arrangement” as follows:

> “The optimizer of the present invention computes an optimized treatment plan, or beam arrangement, which should be understood to include either the optimal beam positions around the treatment field, the optimal arrangement of beam weights, or beam intensities, otherwise known as an intensity map or a fluence profile or both.”

’283 patent at 9:29-34. The ’096 patent notes the “optimized set of radiation beam positions and beam weights, or beam intensities . . . .” ’096 patent at 15:31-34. The

'283 and '096 patents further explain an "optimal beam arrangement is arrived at by computationally increasing the proposed beam weights iteratively…." '283 patent at 9:34-39; '096 patent at 5:39-44; s*ee, also,* Ex. B at '283 patent at 22.4, 25.3; '096 patent at 32.1.

Thus, the beam arrangement, as this term is used in the '283 and '096 patents, is defined by the beam weights associated with segments of one beam or multiple beams around the treatment field.

This understanding is applicable to the '175 patent through its incorporation by reference of both the '283 and '096 patents. '175 patents at 4:27-32.

In the '490 patent, a different construction of ***"radiation beam arrangement"*** is required. The '490 patent does not incorporate the '283 or '096 patents, and was filed many years later. It also describes a different algorithm—one that optimizes the rotational angle of the collimator along the axis of the radiation beam that goes through it.

The optimization in the '490 patent is done for one beam, at one delivery position, where (as for the '283 and '096 patents) that beam has a "plurality of segments." '490 patent at 4:29-30; 3:49-57 (explaining that the described optimization method determines a "radiation beam arrangement" that has a plurality of radiation beam "segments," "for each selected radiation beam delivery

angle"); *see also* Ex. B, '175 patent at 1, 10, 17.1, 10.5 (indicating that the "value for the cost function" is determined "at a selected radiation beam delivery angle.").

Thus, the "radiation beam arrangement" of the '490 patent is a plurality of radiation beam segments for one delivery angle, as indicated in Elekta's construction and does not include multiple beams.

BMI's construction ignores these differences between the '490 and other asserted patents, fails to explain what the word "arrangement" means, and improperly expands the scope of the term for the '490 patent. It should be rejected.

3. Plaintiff's Reply (2/28/20) "beam arrangement", "radiation beam arrangement" [5], "radiation beam arrangement" [6]

Best addressed these in its Opening with respect to the '490 Patent at Section IV.C. Nothing in Elekta's papers sufficiently challenges the problems noted there. Elekta now tries to limit the meaning of beam arrangement to include additional verbiage including "a treatment plan that" and discusses the "treatment field." Neither of those terms are necessarily a part of any definition of *radiation beam arrangement*. A beam arrangement can be thought of as beams from different locations around a patient or arranging the beam weights and intensities as they are used on the patient during a treatment. But even the term "during a treatment" is not necessarily part of the definition of beam arrangement or radiation beam arrangement, no matter what patent Elekta chooses. Indeed, what Elekta does is

choose text from a patent and characterizes that text as a "definition" of a different claim term. In fact, with respect to beam arrangement, a POSA would understand the term without the additional words that Elekta asks be part of the definition. The term literally means how the beams are arranged, and no special construction is required.

When the terms are used in the claims themselves, they will be given further meaning in the context of the words of the claims. For example, a *radiation beam arrangement* standing by itself has no further limitations. But, if the claim recites there are three radiation beam stops that need to be part of the claim, that would add a further limitation. There is no such limitation here. In addition, there is no requirement that a radiation beam arrangement needs to be part of a "treatment plan." Elekta's attempt here is simply to create a short-form construction of the overall claims, which is not what claim construction is for. For these reasons, the Elekta definitions should be rejected and the plain and ordinary meaning, or Best's alternative definition should be used.

4. Defendant's Sur-reply (3/13/20)

BMI fails to recognize that "*radiation beam arrangement*" has a different meaning in the '490 patent than it does in the other three patents. Elekta's proposed constructions properly define the meaning and scope of the *radiation beam*

arrangement terms to a POSITA within the context of their respective patent disclosures. The specifications and claims of the '283, '096 and '175 patents all use "*radiation beam arrangement*" in the same way—namely, as a treatment plan understood to include either the beam positions around the treatment field and/or the array of beam weights. *E.g.* '283 patent at 9:29-34; '096 patent at 5:27-37. The '490 patent, however, uses this term differently to refer to an arrangement of radiation beam segments at a given "radiation beam delivery angle (gantry angle of rotation [])" for optimization of the collimator angle. '490 patent at 2:20-35; *see also* 3:49-51. BMI fails to cite to any evidence to support its assertion that a POSITA would understand this term to have the same meaning in the '490 patent as in the other three patents. BMI's proposed constructions must be rejected.

D. "within an optimizer" [7] ('175 Patent, Claims 1, 8, 11, 13, 19) (Ex. D)

1. Plaintiff's Opening (1/10/20)

Best views the phrase "within an optimizer" as requiring no construction. In the '175 Patent, just as in the other Patents-in-Suit, an optimizer is a program or device that is used to seek a preferred solution to a given problem. As proposed for construction by Elekta, the first part of the phrase, "within" seems to have no meaning other than inside. Indeed, Elekta's definition starts "inside or within",

demonstrating that the term "optimizer" is the only word the Court should consider. One of skill in the art would fully understand the meaning of the term "optimizer." To the extent a definition is required, Best proposes in the alternative "inside a program or device that attempts to find a preferred solution."

Intrinsic evidence supports a plain and ordinary meaning for the term. *See, e.g.,* '175 Pat., 1:41-47 (Dkt. 97-11, at p. 9) (describing the uses of optimizers in different approaches); Rsp to Office Action dated 08-03-2006 (Dkt. 97-15, at pp. 10-15); Rsp to Office Action dated 01-25-2007, at p. 21 (Dkt. 97-17 at p. 21) (noting how the '283 and '096 Patents describe the function of an optimizer); '175 Pat., 4:27-32 (incorporating the contents of the '283 and '096 patents) (Dkt. 97-11, at p. 10). Not only is a construction of the term not warranted to define the outer bounds of a claim's scope, but Elekta's proposed construction adds no additional understanding. Instead, Elekta's construction unduly limits the scope of the claim to being within an iterative optimization loop, words that are not found in the intrinsic evidence to so limit the optimizer. Elekta's definition should be rejected.

2. Defendant's Opening (2/14/20)

[7] within an optimizer (*'175*) (JCCS at 17) (Ex. D)

Elekta's Construction	BMI's Construction

within an optimizer (’175)	
inside or within an iterative optimization loop or iterative optimization process	*Plain and ordinary meaning*. If a construction is required, in the alternative: *inside a program or device that attempts to find a preferred solution*

BMI’s proposed construction of “***within an optimizer***” ignores the Applicant’s efforts during prosecution to overcome the prior art, and improperly seeks to recapture scope that was disclaimed. Elekta’s construction properly accords with the disclosure of the ’175 patent, and the patents it incorporates by reference, as well as the explanations and disclaimers made during its prosecution.

“Within the optimizer” first appeared in the claims of the ’175 patent application in an amendment made to distinguish the claims from the prior art. *See* Aug. 2006 Response at 6 (adding new claim 18, which issued as claim 1, and others). During prosecution, the Applicant repeatedly distinguished the new claims of the ’175 from the prior art by emphasizing that none of the cited prior art:

> “disclos[es], teach[es], or suggest[s] providing control of a trade-off between treatment plan dosimetric fitness and delivery efficiency *within an optimizer* [*emphasis in original*] or *within the optimization loop* to optimize a radiation treatment plan within a continuum between delivery efficiency and dosimetric fitness….”

See, Aug. 2006 Response at 14 (emphasis added); *see also* Aug. 2006 Response at

15, 16; Jan. 2007 Response at 11, 12, 15, 18, 21-22, 24; Carol Decl. at ¶6f3, ¶6f11, ¶6f15. This repeated assertion was made to distinguish the claimed invention from the prior art, and did so on the basis that control of the trade-off in the claimed invention happens "within the optimizer," which was explained to mean, in more technical language, "within the optimization loop."

In the '283 and '096 patents, which are prior art and were incorporated by reference into the '175 patent, the "optimizer" was described with reference to the flow chart of Fig. 2 as "Plan Optimization Step 803," and optimization was accomplished with an iterative "simulated annealing" optimization method. *See* '283 patent Fig. 2, 8:36-38, 9:29-48, 12:27-47 (citing Webb 1989, Webb 1991); *see also* '096 patent FIG. 2, 8:34-59, 10:37-50. Timing issues relating to delivery capabilities were handled separately, in a subsequent "Instrument Fitting step 804." '283 patent at 15:47-59 (explaining that the optimized results from step 803 were "fitted into the delivery capabilities of the LINAC apparatus [] *after* optimization…," in subsequent step 804 (emphasis added)). Thus, the '283 and '096 patents explained that, in the prior art, delivery capabilities were addressed *after* the iterative optimization process.

Indeed, during prosecution of the '175 patent, the Applicant repeatedly distinguished such post-optimization delivery efficiency improvements in the prior

art, stressing that its "claimed invention" was directed "to improvements within the optimization loop or optimization process performed by the optimizer." Aug. 2006 Response at 16; *see also* Jan. 2007 Response at ¶ 11, 12, 15, 18 (emphasis added); Carol Decl. at ¶6f3, ¶6f11, ¶6f15. The Applicant explained, "By applying user (e.g., clinician) control within the optimizer, simpler, more efficient treatment plan solutions can be generated during optimization without a significant reduction in dosimetric fitness. This is an important feature not disclosed, taught, or suggested prior to this Application." Jan. 2007 Response at 12, citing Carol Decl. at ¶6b4, ¶6c5.

These assertions made during prosecution, distinguishing the "claimed invention" from the prior art based on performance of the recited limitations "within the optimizer" (which the Applicant explained to the Patent Office meant "within the optimization loop or optimization process performed by the optimizer") are clear and explicit statements as to the scope of the claims and the meaning of the term "within the optimizer," and thus define and limit the available claim scope. *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.,* 535 U.S. 722, 737 (2002).

BMI's construction improperly construes "within an optimizer" to include anything inside of a "program or device" where some (other) part of the program

or device "attempts to find a preferred solution." Because BMI's construction would encompass prior art distinguished and identified during prosecution, and fails to recognize that an optimizer has a particular meaning as explained during prosecution and is not merely a generic "program or device," it should be rejected.

3. Plaintiff's Reply (2/28/20) "within an optimizer" [7]

Elekta seeks to limit *within an optimizer* using other elements of the claims rather than by the meaning of the term itself as it would be understood to one of skill in the art. Best notes initially that Elekta provides with its filing, and separate from the Joint Claim Construction Chart, new definitions of several terms, including *within an optimizer*. Here, rather than taking the term in the context of the patent, Elekta limits it through embodiments and supposedly limiting statements in the prosecution history of the patent. For example, Elekta points out that in specification embodiments the "optimizer" uses "iterative" steps, so the meaning of optimizer must include "iterative." Again, that is not defining or construing a term, rather it is *limiting a term through the use of an embodiment*. That runs afoul of the same rule of construction when done to a claim. *See, e.g., Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1324 (Fed. Cir. 2002) (reading embodiments into the claims is the "cardinal sin" of claim construction).

Elekta also cites to the prosecution history as supposed support for a limiting

and larded-on construction of *within an optimizer*. Best disagrees with the starting proposition that any of the cited history has the effect that Elekta asks the Court to draw. For example, Elekta cites to a statement regarding "user control" being "within the optimizer" as somehow evoking the language added to the definition, namely "iterative loop" or "iterative process." *See Response*, *p. 10*. The cited statement in no way demonstrates that the optimizer of the claims must always be iterative or require "user control" being "within the optimizer". Clearly including such language in the claim term definition is impermissible and improper. .

As noted in Best's Opening, the term "with an optimizer" as used in the '175 Patent is the same as used in other areas of the art, is well-known and understood without more by those of ordinary skill in the art, and should be given its plain and ordinary meaning or Best's alternative construction, "inside a program or device that attempts to find a preferred solution."

4. Defendant's Sur-Reply (3/13/20)

BMI's arguments concerning "within an optimizer" completely ignore the lengths its predecessor, Nomos, went through during prosecution to distinguish the scope of the '175 claims from the prior cited art. "*[W]ithin an optimizer"* was added by amendment during prosecution, with the explanation that this language meant "*within the optimization loop or optimization process performed by the*

optimizer," in order to distinguish the claims from the cited prior art. Resp. Br. at 9; Aug. 2006 Response at 16. Moreover, the '283 and '096 patents, incorporated by reference in the '175 patent, explain, "[t]he optimizer" is an iterative process:

> The optimizer of the present invention computes an optimized treatment plan, or beam arrangement, ... increasing the proposed beam weight iteratively, incorporating cost functions to ensure that an iterative change in the beam weight would not result in an unacceptable exposure . . . .

Resp. Br. at 9; '283 patent 9:29-44 (emphasis added). Accordingly, *within an optimizer* should be construed to mean "inside or within an iterative optimization loop or iterative optimization process," as in Elekta's revised construction.

E. "total monitor units" [9] ('175 Patent, Claim 8) (Ex. E)

1. Plaintiff's Opening (1/10/20)

The term "monitor units" as further modified by the word "total" is an unambiguous term that a person of skill in the art would understand without further definition. A monitor unit is a measure of the output of a linear accelerator or LINAC related to the amount of time the radiation beam is on. Nothing in the claims, the specification, or the prosecution history of the '175 Patent leads to a different definition – and nothing cited by Elekta suggests why this term should be construed.

Best has offered a construction in the alternative, if required: "a measure of linear accelerator output that is related to total radiation beam on-time." As noted in the '175 Patent specification, part of the intrinsic evidence of the patent, "[b]eam on time is proportional to Total Monitor Units required for a treatment delivery." '175 Patent, 2:34-35 (Dkt. 97-11, at p. 9); s*ee also* '175 Patent, 1:21-23 (Dkt. 97-11, at p. 9); *id.* at 4:3-5 (Dkt. 97-11 at p. 10).

Elekta's proposed construction for this term is "the total radiation beam-on time of the linear accelerator used in providing the treatment." In fact, Elekta's proposed construction conflates the term by imposing an otherwise unnecessary treatment aspect to the term. Elekta's construction is an attempt to unduly limit the scope of the claim that should be rejected.

2. Defendant's Opening (2/14/20) [9] total monitor units ('175) (JCCS at 23) /[8] monitor unit ('490) (JCCS at 21)

Elekta's Construction	BMI's Construction
total monitor units ('175)	
a measure of the total radiation beam-on time of the linear accelerator used in providing the treatment	*Plain and ordinary meaning*. If a construction is required, in the alternative: *a measure of linear accelerator output that is related to radiation beam on-time*
monitor unit ('490)	
the amount of radiation delivered to the target	*Plain and ordinary meaning*. If a construction is required, in the alternative: *a measure of linear accelerator output that is related to radiation beam*

	on-time

The ’175 patent explains that “***Total Monitor Units***” is a “quantitative measure of delivery efficiency.” ’175 patent at 2:18-23. It further defines total monitor units, stating, “the total radiation beam on time of the linear accelerator used in providing the treatment, which is the Total Monitor Units.” ’175 patent at 2:33-34 (emphasis added). This is the construction provided by Elekta, and it properly construes the term to be the measures of time (efficiency) for a treatment that are described and contemplated in the ’175 patent.

BMI ignores this definition and points instead to a more general statement about “beam on” time, explaining that “[b]eam on time is proportional to Total Monitor Units required for treatment delivery.” Op. Br. at 16-17; ’175 patent at 2:34-35. BMI’s alternative construction, however, is not limited to even this broader statement. BMI posits that “Total Monitor Units” is any “measure of linear accelerator output” that is “related” to radiation beam on-time, pointing to usage in the patent of the generic term “monitor units.” BMI’s construction goes too far.

Because the ’175 patent uses “Total Monitor Units” as a measure of efficiency and clearly distinguishes the term “Total Monitor Units” from “monitor units”—as indicated by inclusion of the word “total,” capitalization of the words, and explicit definition of “Total Monitor Units” —Elekta’s construction is proper

and BMI's construction must be rejected. *See, e.g., Irdeto Access, Inc. v. Echostar Satellite Corp.*, 383 F.3d 1295, 1303 (Fed. Cir. 2004).

Moreover, during prosecution of the '175 patent, the patentee admitted to the Patent Office that the cited Pirzkall reference discloses "total monitor units" as used in the '175 patent claims. Jan. 2007 Response at 20 (citing Carol Decl. at ¶6f9); Carol Decl. at ¶6f9 ("[*T]he [Examiner] states that Pirzkall et al . . . teaches that delivery efficiency is a function of total monitor units. This is true . . . .*"). Pirzkall reports the radiation doses (in MU) required for various treatments, to be delivered at a rate of 500 MU/min. Pirzkall at 1376, Table 6; 1374. Using simple math, the beam-on-time for delivery is calculated as the required dose divided by 500. Pirzkall assesses how these required doses, delivered at the given rate, relate to the actual time required for treatment, concluding that actual treatment times were "roughly proportional" to "MU required." *See, id.* at 1374, 1379, Tables 2, 6. Elekta's construction is consistent with this disclosure.

The '490 patent refers to "***monitor units***" as "MU's" and states, "A reduction in *MU's* is a reduction in *the amount of radiation delivered to the target*." '490 patent at 1:44; 47-50. This is the construction provided by Elekta. As the '490 patent and its file history do not otherwise interpret or explain the meaning of this term, this is the proper construction.

3. Plaintiff's Reply (2/28/20)

Both Best and Elekta recognize *that total monitor units* is a "quantitative measure of delivery efficiency." *Dkt. 97-11, col. 2, ll. 18-23*. Further, the claims of the '175 Patent use, in some instances, *total monitor units* or *monitor unit* as a quantitative tool for determining delivery efficiency and/or dosimetric fitness.

The real differences between the Best construction and the Elekta construction is, first, Best believes that the plain and ordinary meaning should apply. Total monitor units is something that is looked at by radiation oncologists and medical physicists as a normal part of their work. Thus, a POSA would have no difficulty understanding what total monitor units are. Also, Best's alternative definition, is fairly close to the Elekta definition to the extent it deals with a "measure of linear accelerator output that is related to radiation beam on time." The fact is that as long as there is some quantitative measure, total monitor units is useful as a tool for the medical physicist and for the '175 Patent claimed invention as a measure of delivery efficiency.

Elekta limits to the term by adding the words "in providing the treatment," to the proposed definition. That does not necessarily have to be part of the definition of total monitor units. The passage cited by Elekta shows a capitalization of total monitor units, *i.e.*, "Total Monitor Units," such that it is

meant to be separate from and different than the uncapitalized total monitor units. It is the latter term that is found in the claims, and not the term as in column 2 of the patent. In the end, Best's definition actually reflects the meaning of total monitor units and monitor units as used in'175 and '490 Patents.

4. Defendant's Sur-Reply (3/13/20)

The '490 claims use *monitor units* whereas the '175 claims use *Total Monitor Units*. These are different terms in different patents and have different meanings. The '490 patent equates *monitor units* (or "MU's") to "the amount of radiation delivered to the target." Resp. Br. at 13; '490 patent at 1:44, 47-50. The term *monitor units* should be construed accordingly. The '175 patent uses *Total Monitor Units* to refer to "total radiation beam on time of the linear accelerator used in providing the treatment." Resp. Br. at 11; '175 patent at 2:33-34. An "amount" of radiation is different than a "time" of radiation. BMI's proposal to construe these terms the same way, as "a measure" of "output" that is "related to beam-on time," blurs the patent boundaries and violates the basic principle of claim construction that "terms must be construed in light of [their own] specification"—not the specifications of other patents. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) ("[T]he specification . . . is the single best guide to the meaning of a disputed term.'").

F. "a cost function" [10], "an objective cost function," "objective function" (Ex. F)

1. Plaintiff's Opening

[None.]

2. Defendant's Opening (2/14/20)

[10] a cost function ('283, '096, '175) / ('490) / an objective cost function ('175) / objective function ('175) (JCCS at 23) (Ex. F)

Elekta's Construction	BMI's Construction
cost function (*'283, '096, '175)*	
objective cost function / objective function (*'175)*	
a mathematical representation of the treatment objectives that is determined for a radiation beam arrangement and describes how close the radiation beam arrangement is to a desired goal	*Plain and ordinary meaning*. If a construction is required, in the alternative: *mathematical function that determines a value based upon factors*
cost function (*'490*)	
a mathematical representation of the treatment objectives that is determined for a radiation beam arrangement and describes how close the radiation beam arrangement is to a desired goal	*Plain and ordinary meaning*. If a construction is required, in the alternative: *mathematical function that determines a value based upon factors*

In every claim of the '283 and '096 patents where the term "***cost function***" appears, the claim requires using a computer "to computationally change the proposed radiation beam arrangement [or beam weights] iteratively" and "incorporat[ing] a cost function at each iteration." *See, e.g.,* Ex. F at '283 patent

1.2, 1.3; '096 patent 1.2, 1.3. Thus, the cost function is "incorporated" at each iteration where the beam arrangement or beam weight is changed.

The patents further explain that their methods "produce an optimized treatment plan, based on the treatment objectives as expressed by the cost function . . . ." 283 patent at 9:45-48; '096 patent at 5:51-52, '096 patent at 5:38-44 ("The optimal beam arrangement is arrived at by computationally increasing the proposed beam weight iteratively, incorporating cost functions to ensure that an iterative change in the beam weight would not result in an unacceptable exposure to the volumes of tissue or other structures being subjected to the proposed dose."); *see also* '283 patent at 5:15-20, 9:34-40.

As stated in each of the '283 and '096 patents, "[t]he cost function is an analytical determination of whether, when any change is made to the strengths of the beams being used to treat the patient, the resultant dose distribution is closer to the result desired by the user." 283 patent at 13:1-4; '096 patent at 10:37-40.

This explanation and definition of "cost function" is supported by the more detailed explanations in two papers by Steve Webb, incorporated by reference into the '283 and '096 patents. '283 patent at 12:27-47; '096 patent at 8:34-59.

Webb 1991 summarizes and expands the methods presented in Webb 1989. Webb 1991 at 1227-1228; *see also* Webb 1989 at 1352, 1355, 1358. Webb 1999

explains that equation (2) is "termed a cost function" and is the difference "between the current dose estimate [] and dose prescription []." Webb 1999 further explains that at each iteration, the cost function is used to determine "whether to accept or reject" the changes to the beam intensities. *Id.* This is done by comparing the value of the cost function at the current iteration to its value at the previous iteration, and determining whether there was an increase or a decrease. *Id.* at 1228-29. If the value of the cost function decreased, the change is accepted. *Id.* at 1229.

Elekta's construction properly recognizes and states these features of the cost function. *See, also,* '283 patent at Abstract, 4:13-8:29, 10:43-53; '096 patent at Abstract, 6:47-58, 9:3-9. Importantly, Elekta's construction explains that the recited "cost function" is "mathematical," is "a representation of the treatment objectives," is "determined for a radiation beam arrangement," and "describes how close the radiation beam arrangement is to a desired goal."

In contrast, BMI posits that a "cost function," as that term is used in the '283 and '096 patents, can be any "mathematical function," and vaguely indicates that a function "determines a value based upon factors." BMI's proposed construction entirely ignores the claim language, the disclosure of the patents and the Webb articles incorporated into the patent, and does nothing at all to clarify the meaning of the term "cost function." BMI's construction should be rejected.

For the '175 patent, the claims require a "***cost function***" or "***objective cost function***" and "***objective function***." Claim 1 recites "evaluating a cost function for each of a set of a plurality of candidate intensity maps . . . within an optimizer," and claim 8 depends from it. Ex. F at '175 patent 1.2. Claim 13 recites "evaluating an objective cost function for each of the plurality of intensity maps, the objective function including a dosimetric cost term and the delivery cost term," and claim 19 depends from it. *Id.* at '175 patent 13.2, 19.1. The antecedent basis for "the objective function" is "an objective cost function," so "objective function" is shorthand for "objective cost function." *See, e.g., XpertUniverse, Inc. v. Cisco Sys*., 2012 U.S. Dist. LEXIS 55760, *6-7 (D. Del. April 20, 2012) (term introduced only with "the" was shorthand for an earlier and longer version of the term).

The specification of the '175 patent does not use the term "objective cost function" or even "objective." It uses only the term "cost function," explaining that "the fitness of a dose distribution is typically quantified by using a dosimetric cost function[, and] dose distributions with low Dosimetric Cost are generally deemed superior to those with a high Dosimetric Cost." '175 patent at 2:42-45. The specification also states that "a dose volume histogram ("DVH") based upon a cost function may be used to quantify Dosimetric Fitness." '175 patent at 3:17-19. The specification otherwise does not mention any "function."

The ’175 patent incorporates by reference, however, the ’283 and ’096 patents. The discussion above regarding the interpretation of “cost function” as used in the ’283 and ’096 patent claims applies equally to the ’175 patent claims. In addition, during prosecution of the ’175 patent, the applicant submitted a declaration of Mark Carol explaining “cost functions” as “the mathematical representation of how good or bad something is,” consistent with Elekta’s proposed construction for “cost function.” Carol Decl. at ¶6a4.

The ’283 and ’096 patents also explain that the “cost function” is used to express the treatment “objectives.” *See, e.g.,* ’283 patent at 9:45-48, 8:61-65, 12:52-56; ’096 patent at 5:3-7, 5:51-52, 9:3-9. In one place, the ’283 and ’096 patents use the term “objective cost function” instead of the term “cost function.” ’283 patent at 3:17-21; ’096 patent at 3:17-21. For at least these reasons, the term “objective cost function” should be construed to mean the same thing as “cost function”—a point that does not appear to be disputed by the parties.

For the ’490 patent, the claims require a “***cost function***.” The ’490 patent explains that one embodiment of the invention includes “a method, preferably being computer-implemented, which includes calculating an initial radiation beam arrangement according to a desired prescription to determine a radiation beam delivery angle. . . . This radiation beam arrangement is updated or changed by

incorporating a first function, generally in the form of a cost function, to determine an optimum collimator angle of the multi-leaf collimator." '490 patent at 26-35; *see also* 3:4-57; 4:12-22; 6:13-64.

The '490 patent also incorporates by reference the '619 patent, which in turn incorporates by reference the same two papers authored by Steve Webb that were incorporated by reference into the '283 and '096 patents. '490 patent at 1:16-22; '619 patent at 17:10-30; U.S. Patent 5,802,136 at 27:1-21. *Advanced Display Systems, Inc. v. Kent State University*, 212 F.3d 1272, 1282 (Fed. Cir. 2000) (with clear incorporation by reference, "the material is effectively part of the host document as if it were explicitly contained therein"). Thus, the discussion above regarding the interpretation of "cost function" as explained by Webb's papers applies equally to the meaning of this term as it is used in the '490 patent.

Accordingly, "cost function" as used in the '490 patent should be construed in the same way as for the '283 and '096 patents: "*a mathematical representation of the treatment objectives that is determined for a radiation beam arrangement and describes how close the radiation beam arrangement is to a desired goal.*"

3. Plaintiff's Reply (2/28/20) "a cost function", "an objective cost function", "objective function" [10]

Best's position is that each of the cost function terms, *a cost function, an objective cost function* and *objective function*, are subject to the plain and ordinary

meaning that would be understood by a POSA. Nothing in the Elekta brief requires a change from the plain and ordinary meaning. Should the Court determine that a construction is necessary, Best's alternative construction is appropriate: "mathematical function that determines a value based upon factors."

The term "cost function" in the context of the '283, '096, '175 and '490 Patents is indeed a mathematical function that, in a general sense, is a mathematical expression of something that is based upon factors. At this stage of the litigation, it is unimportant what the math is or what factors are used to determine what the function should look like. In the context of the different patents that are before the Court, *cost function* has the same general meaning, that is finding a solution to a problem based upon factors that are input into the problem. Best's construction, unlike Elekta's, allows for other claims to provide how *a cost function* operates in any particular claim in any particular patent.

Elekta cites language in the patent specifications and suggest that the language somehow points toward Elekta's definition and away from the plain meaning or Best's proposed alternative definition. For example, Elekta cites that a treatment plan can be "based on the treatment objectives as expressed by the cost function." *Dkt. 97-1, '283 Patent, col. 9, ll. 45-48; Dkt. 97-5, '096 Patent, col 5, ll 51-52*. Treatment objectives, , while they may be the result for use of the cost

function, are not necessarily part of the cost function itself, but may be the types of "factors" that Best anticipated in its alternative construction. It is also what a POSA would understand such "treatment objectives" would be "factors" when looking at a cost function.

In its Response (p. 15), Elekta notes that the '293 and '096 Patents state that "[t]he cost function is an analytical determination of whether, when any change is made to the strengths of the beams being used to treat the patient, the resultant dose distribution is closer to the result desired by the user." *Dkt. 97-1, '283 patent col. 13, ll. 1-4; Dkt. 97-5, '096 patent, col. 10, ll. 37-40*. Best agrees that when cost functions are used in certain contexts, they can measure whether changes to beam strength, for example, may result in a dose to the patient that is closer to the result desired by the clinician. However, the word cost function by itself does not require such a result. A cost function can look to see whether one of two things is or is not closer or further away from some proposed solution. Here, in the context of the patents, it often is radiotherapy treatment. But a "cost function" can be other things in other places. Elekta is trying to add limitations that are not present in those terms or in the meanings of those terms.

For example, Elekta adds in the following: "that is determined for a radiation beam arrangement and describes how close the radiation beam arrangement is to a

desired goal." The problem with that definition is that it adds all sorts of limitations that are not found in and are not required by the term "cost function." The limiting language that is added by Elekta into its definition does not find a home in the term itself, and more properly, should be read when they are part of the claim as a whole.

The reference to two papers by Steve Webb does not provide any further support for Elekta's argument. The Webb papers provide an equation that the papers term a cost function and describe what that particular equation does. But, as stated, it is only "a cost function" and not "the cost function." The Webb cost function does a particular thing. It is based upon particular factors. As such, Webb's cost function is not a definition of "cost function" but rather, is only an example of a cost function that is "mathematical function that determines a value based upon factors."

Moreover, there is nothing in the '490 Patent that requires a different definition of *cost function*. In its explanation of the term *cost function* Elekta represents that the term should include a radiation beam arrangement and describe how close a radiation beam arrangement is to a desired goal. But none of that language is found in the ordinary meaning of the term cost function. Instead, Elekta appears to look to the use of the term in the claims. And, that is the

problem. The proper use of claim construction is to define the claim terms so that when they are used in the context of the claim they are understandable and give meaning to the full scope of the claim and does not unduly limit the claim. *See Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.").

4. Defendant's Sur-Reply

BMI seeks to improperly expand the scope of the claims to encompass *any* "mathematical function," rather than the recited *cost / objective function.* The patents explain, however, that the recited *cost / objective function* is a specific kind of mathematical function (*see, e.g.,* '490 patent at 2:32-34), one that is *"determined for a radiation beam arrangement and* ***describes how close the radiation beam arrangement is to a desired goal***," as provided in Elekta's proposed construction. *See* Resp. Br. at 13-18.

BMI concedes that "in certain contexts," the cost function ***"measure[s] whether changes . . . may result in a dose to the patient that is closer to the result desired by the clinician.***" Reply Br. at 9. BMI nonetheless argues that Elekta's proposal is wrong because "a 'cost function' can be **other things in other places**," and "[a]t this stage of the litigation," the details of the math and factors are

"**unimportant.**" BMI claims the terms should be construed to encompass any "mathematical function." Reply Br. at 8, 10, 20.

BMI's position is contrary to the language of the claims and the disclosure of the patents. BMI's attempt to broaden the claim scope is also contrary to arguments that it has made in the pending *inter partes* review of the patent.[10] BMI cannot have it both ways. The *cost / objective function* terms should be construed in light of the language of the claims and the patents, as proposed by Elekta.

G. "to approach correspondence" [11], "lesser correspondence" [12], "greater correspondence" [13] (Ex. G)

1. Plaintiff's Opening (1/10/20)

[None.]

2. Defendant's Opening (2/14/20)

[11] to approach correspondence (*'283, '096*)
(JCCS at 27) /
[12] lesser correspondence (*'283, '096) / ('490*)
(JCCS at 29) /

[10] For example, BMI argues in this litigation that "[t]reatment objectives . . . are not necessarily part of the cost function itself, but may be the types of 'factors'" identified in Best's proposed construction of the *cost /objective function* terms. Reply Br. at 9. But in response to an IPR Petition on the '283 patent, BMI argued the exact opposite—that factors serving as mathematical constraints on an objective function did *not* constitute a "cost function" as recited in the claims. *Patent Owner's Preliminary Response,* IPR2020-00070 (Feb. 7, 2020) at 22.

[13] greater correspondence (*'283, '096*)
(JCCS at 31) (Ex. G)

Elekta's Construction	BMI's Construction
to approach correspondence ('283, '096)	
to get closer to, as measured by the cost function	*Plain and ordinary meaning*. If a construction is required, in the alternative: *to obtain a closer agreement*
greater correspondence ('283, '096)	
being closer to, as measured by the cost function	*Plain and ordinary meaning*. If a construction is required, in the alternative: *better agreement*
lesser correspondence ('283, '096)	
being further away from, as measured by the cost function	*Plain and ordinary meaning*. If a construction is required, in the alternative: *worse agreement*
lesser correspondence ('490)	
being further away from, as measured by the cost function	*Plain and ordinary meaning*. If a construction is required, in the alternative: *worse agreement*

The claims of the '283 and '096 patents use the term "***to approach correspondence***" as follows: "Incorporat[e/ing] a cost function at each iteration to approach correspondence of [a CDVH *or* partial volume data] associated with the proposed radiation beam arrangement to [a CDVH *or* partial volume data] associated with a predetermined desired dose prescription." Ex. G '283 patent at 1.3, 25.4; '096 patent at 1.3, 31.3. Thus, according to the claim language, the recited "correspondence" pertains to a "proposed radiation beam arrangement" and a "predetermined desired dose prescription" and the cost function is incorporated at each iteration to "approach correspondence" of the former with the latter.

The claims of the '283 and '096 patents use the terms "***greater***

correspondence" and "***lesser correspondence***" as follows: "Reject[e/ing] the change [of/to] the proposed radiation beam arrangement if the change of the proposed radiation beam arrangement leads to a lesser correspondence to the desired prescription and [to] accept[ing] the change [of/to] the proposed beam arrangement if the change of the proposed beam arrangement leads to a greater correspondence to the desired dose prescription to obtain an optimized radiation beam arrangement.[11] Ex. G '283 patent at 1.4, 22.5, 25.5; '096 patent at 1.5, 31.4. Thus, these remaining terms also refer to correspondence of a "proposed radiation beam arrangement" with a "predetermined desired dose prescription."

As explained in the '283 and '096 patents, "[t]he cost function is an analytical determination of whether, when any change is made to the strengths of the beams being used to treat the patient, the resultant dose distribution is closer to the result desired by the user." '283 patent at 13:1-4; '096 patent at 10:37-40. Thus, the cost function is the measure of how close the dose distribution for a proposed radiation beam arrangement is to the desired dose prescription.

Elekta's proposed constructions for the "correspondence" terms properly

[11] Claims 1 and 21 of the '096 patent recite: "increasing or decreasing radiation beam intensity if the change of the proposed beam arrangement leads to a greater correspondence to the desired dose prescription."

follow the disclosure of the patent and the language of the claims. "To approach correspondence" is "to get closer to, as measured by the cost function." "Greater correspondence" is "being closer to, as measured by the cost function" and "lesser correspondence" is "being further away from, as measured by the cost function." *See also* '283 patent at 9:29-48; 13:40-52; 4:14-8:28; '096 patent at Abstract; 5:39-49; 10:37-40.

The '490 patent uses the term "cost function" in the same way that this term is used in the '283 and '096 patents. *See* Section B.1. The '490 patent also uses the term "***lesser correspondence***." As explained in the '490 patent, "The change or update in the radiation beam arrangement can be rejected if the change of the radiation beam arrangement significantly leads to a lesser correspondence to the desired prescription. . . ." '490 patent at 2:47-51. For at least these reasons, the term "lesser correspondence" as used in claim 4 of the '490 patent should be construed in the same way that this term is construed for the '283 and '096 patents.

BMI's proposed constructions for the "correspondence" terms are not based on the disclosure of the patents but, rather, appear to be pulled from thin air without justification. They should, accordingly, be rejected.

3. Plaintiff's Reply (2/28/20) "to approach correspondence" [11], "lesser correspondence" [12], "greater correspondence" [13]

The '283, '096 and '490 patents use the term *correspondence* together with some modifier: *to approach*, *greater* and *lesser*. Best believes *correspondence* has a plain and ordinary meaning, or, alternatively, means "to obtain a closer agreement." Correspondence does not require a match or that the things are the same. Rather, Elekta seeks to define *correspondence* to include "as measured by the cost function." Nothing in the term *correspondence* requires that there be any measurement by the cost function. The definitions that Elekta proposes move further away from the plain and ordinary meaning of the terms, which can also be expressed as in Best's alternative "to obtain a closer agreement." The Court will note that the phrase "cost function" does not appear in or around the term correspondence. Clearly the definition of the term *correspondence* does not require in its definition the use of a cost function.

For example, the '283 patent uses the term "to approach correspondence of a CDVH associated with the proposed radiation beam arrangement to a CDVH associated with a predetermined desired dose prescription." *See Dkt. 97-1, Claim 1.* That phrase uses the term *correspondence* and the longer term, as requested by Elekta for construction, to approach *correspondence*, but the other language is the language of a claim and to include such other language from the claim in the

construction is improper. To the extent a cost function is used, there is other language that says "incorporating a cost function at each iteration to approach correspondence." Thus, adding cost function into the term's definition is unnecessary and does not help clarify the claim term.

4. Defendant's Sur-Reply (3/13/20)

Claim terms must be construed in light of the full language of the claims and the specification. *Phillips,* 415 F.3d at 1314 ("the claims themselves provide substantial guidance as to the meaning of particular claim terms"); Resp. Br. at 19-21. The claim language in the '283 and '096 patents makes clear that "correspondence" pertains to a "proposed radiation beam arrangement" and a "predetermined desired dose prescription." The claim language also makes clear that "the cost function" is incorporated at each iteration to "approach correspondence" of the beam arrangement to the dose prescription, and to measure the degree of correspondence between the two. Resp. Br. at 19-20. The specifications of the '283 and '096 patents further explain that "[t]he cost function is an analytical determination of whether . . . [a] resultant dose distribution **is closer to** the result desired by the user." '283 patent at 13:1-4; '096 patent at 10:37-40; Resp. Br. at 20. Thus, the language of the claims and the specification require the construction proposed by Elekta.

BMI proposes to construe the phrase "to approach correspondence" as "to obtain a closer agreement." This construction should be rejected as it does nothing to explain the meaning of the term, and BMI offers nothing to support it.

H. "partial volume data" [14] (Ex. H)

1. Plaintiff's Opening (1/10/20)

[None.]

2. Defendant's Opening (2/14/20)

[None.]

3. Plaintiff's Reply (2/28/20)[12]

[None.]

4. Defendant's Sur-Reply[13]

D(2) partial volume data [14] (*'283, '096*) (JCCS 32) (Ex. O)

[12] Best objects to Elekta's attempt to argue new constructions in Sur-Reply leaving Best no opportunity to respond. Elekta's arguments on "beam weights" and "partial volume data" should be rejected.

[13] In an effort to reach agreement, Elekta provided modified proposed constructions of the terms "partial volume data" and "beam weights" to BMI and did not address them in its Responsive Brief. BMI objected to Elekta's proposed constructions, but did not explain its position or address the terms in its briefs. For these reasons, and those provided here, Elekta requests that the Court adopt Elekta's proposed constructions.

Elekta's Construction	BMI's Construction
partial volume data ('283, '096)	
data describing what percent of the volume of a tumor or structure receives a specified dose	*Plain and ordinary meaning.* If a construction is required, in the alternative: *data describing what amount of a defined volume receives a given dose*

The '283 and '096 patents both explain that "***partial volume data"*** generally describes what percent of the volume of a tumor or structure can receive how much dose." '283 patent at 10:60-62; '096 patent at 7:66-7:1. Further, "CDVH curves 100, 200 utilized in the system of the present invention are created from partial volume data for each target and structure of a given patient." '283 patent at 10:53-55; '096 patent at 6:59-61; *see also* '283 patent at 3:49-51; 10:35-45; '096 patent at 3:49-50; 6:40-50. The CDVH curves plot "Percent Volume" as a function of dose. '283 patent, Figs. 3, 4, 5; 8:39-44; '096 patent, Figs. 3, 4, 5; 4:39-46.

Elekta's proposed construction properly tracks this defining language. Importantly, Elekta's construction explains that "partial volume data" indicates the percentage of each partial volume (tumor or structure) that receives a specified dose – not the amount, as proposed without justification by BMI. *See, e.g.,* '283 patent at 10:60 – 11:51; '096 patent at 6:66 – 7:58.

I. "beam weights" [15] (Ex. I)

1. Plaintiff's Opening (1/10/20)

[None.]

2. Defendant's Opening (2/14/20)

[None.]

3. Plaintiff's Reply (2/28/20)

[None.]

4. Defendant's Sur-Reply (3/13/20)

D(1) beam weights [15] ('283, '096) (JCCS at 34) (Ex. N)

Elekta's Construction	BMI's Construction
beam weights ('283, '096)	
Beam and/or beam segment intensities	*Plain and ordinary meaning*. If a construction is required, in the alternative: *Radiation intensity(ies) of a beam(s) over time and/or beamlet(s) over time*

Both parties recognize that the '283 and '096 patents consistently describe "***beam weights***" as "beam intensities." '283 patent at 9:17-19; 9:32-34; 15:47-49; '096 patent at 5:27-30; 15:31-34). Each of these two patents also explains that "the intensity of the radiation beam across the surface of the tumor" may vary, such that some segments of the beam have higher intensities than other segments. '096 patent at 2:14-18, 41-45; '283 patent at 2:14-18, 41-45.

Webb 1991, incorporated by reference into the '283 and '096 patents,

similarly uses "beam weight" to indicate variation in intensity across a beam. Webb 1991 at 1228; '175 patent at 4:27-32; '096 patent at 8:48-52. Webb 1991 shows the geometry of spatially modulated radiation therapy in Figure 2. *Id.* at 1228. Webb 1991 further explains that the "the aim is to calculate the spatial variation of *intensity* between the many strips [e.g. d_{ijm}] of the [m] beams." *Id.* at 1231 (emphasis added); s*ee also* Webb 1989 at 1350.

BMI's proposed construction improperly defines "weights" as characterizing the "beam" or "beamlets" "over time." The patents do not use the term "beamlets" and there is nothing in either patent to support the restriction of "over time."

J. "intensity map(s)" [19] (Ex. J)

1. Plaintiff's Opening (1/10/20)

[None.]

2. Defendant's Opening (2/14/20)

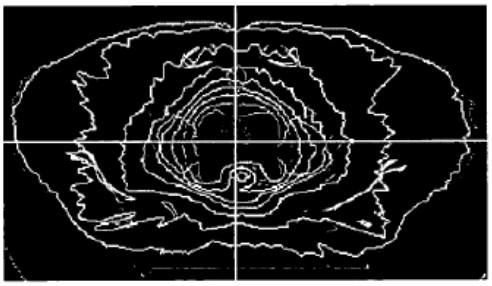
[19] intensity map(s) (*'175*) (JCCS at 40) (Ex. I)

Elekta's Construction	BMI's Construction
intensity map(s) ('175)	
a graphical	*Plain and ordinary meaning*. If a

representation of the dose distribution created by multiple beams	construction is required, in the alternative: *a representation of the variation of radiation across a defined area*

The '175 patent uses the term "intensity map" to refer to a graphical representation of the distribution of dose (e.g. in a patient) that results from delivery of radiation by multiple beams positioned around the patient.

For example, Figures 4A, 4B, and 4C show the "dose distribution" for a "clinical treatment" or "radiotherapy" plan, and are explicitly defined as "dose distribution intensity maps." '175 patent at Fig. 4A-C, 3:50-54, 2:3-4 (example included below); *see also* Figures 2A-2C, 3:31-36, 1:66-67; Figs. 7, 8; 2:10-12.



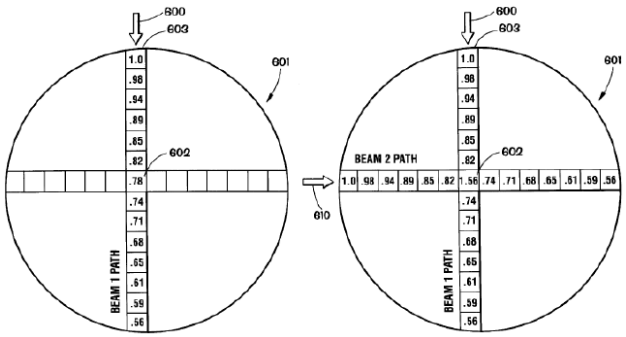
Dosimetric Cost = 1.94
Total Monitor Units = 6640

FIG. 4C.

The language of the patent's claims further demonstrates that, in the '175 patent, "intensity map" is used as shorthand for "dose distribution intensity map." For example, independent claim 13 recites "evaluating an objective cost function" for each of a "plurality of intensity maps," where that function includes a dosimetric cost term for "***the respective intensity map***." Claim 16 depends from

claim 13 and refers to "***the respective dose intensity map***." This makes clear that the "respective intensity map," as recited in independent claim 13, is a "dose intensity map" that represents the distribution of dose.

The '096 patent, incorporated by reference into the '175 patent ('175 at 4:27- 32), explains that the distribution of dose depends on "[t]he cumulative effect of multiple beams passing through the treatment field [e.g. patient]." '096 patent at 5:28-38. For example, as shown in Figures 6A and 6B (below), the dose delivered by the central rays of two beams, one positioned at the top and one positioned at the left (as indicated by the arrows), results in a combined dose of 1.56 at location 602 of the "three-dimensional treatment field." *Id.* at 5:23-38.



BMI's construction is not consistent with these disclosures of the patent, as it refers to "radiation," rather than "dose," and is limited to "variation ... across a defined area," which would be for a single beam. For at least these reasons, BMI's construction should be rejected.

3. Plaintiff's Reply (2/28/20) "intensity map[s]" [19]

Elekta walked away from the plain meaning of intensity map, both as used in the specification and as used in the '283 and '096 Patents (which are both incorporated into the '175 Patent by reference). An "intensity map" is a map of the radiation intensities transmitted across a defined space, such as in Best's alternative construction of "a representation of the variation of radiation across a defined area". Intensity maps are used in radiotherapy to indicate the intensity of radiation to be transmitted in a theoretical two-dimensional grid. For example, each square in the grid may have a different intensity value depending on the cumulative intensity of the radiation to be delivered. When an MLC is used in IMRT, the amount of radiation can be varied across the dimensions of a radiation beam at each gantry angle. This is demonstrated in the figure in Best's Technical Background at p. 9. As used in IMRT, each intensity map is representative of the radiation to be delivered from a single gantry angle as the radiation source rotates around the patient. The (potentially variable) radiation intensity at each gantry angle will be represented by an intensity map. Projecting into a patient all of the radiation delivered according to all of the intensity maps in a plan will yield a cumulative dose distribution, *i.e.*, a three-dimensional representation of dose to the target and surrounding OARs.

Contrary to Elekta's arguments, the '175 Patent teaches that maps with more intensity changes "generally require more segments to deliver, and thus are assigned a larger delivery cost term." *See Dkt. 11*, *col. 2, ll. 51-55*. This is confirmed in the prosecution history. The examiner cited Pirzkall, an article which states: "IMRT plans consist of a large number of small beams, each of which may, and usually tend to, have an intensity of less than 100%. . . . the more complex the plan, the more variable will be the average beam intensity and the greater will be the number of subfields to deliver." *See Dkt. 97-12, p. 5; Dkt. 97-13*, *p. 7,* '175 Patent file history.

Elekta's construction is completely wrong, and seeks to define "intensity map" to mean "representation of dose distribution." The problem is that dose distribution is entirely different from an intensity map. Indeed, as noted above, intensity maps are the basis from which a dose distribution is created. *Id*. The former represents a single representation of radiation intensity in a treatment plan that may have multiple such representations. A dose distribution, however, is the calculated composite of the overall radiation treatment. *See, e.g.*, *Dkt. 97-11*, '175 Patent, 1:13-16. Indeed, Elekta ignores the prosecution history (which it cites for other purposes) including the Mark Carol Declaration. *Dkt. 97-18*. In the Declaration, Dr. Carol states: "Traditional intensity modulated radiation therapy

('IMRT') planning systems attempt to find radiation intensity maps resulting in the best dose distribution for a specific tumor for a specific patient." *Dkt. 97-18, p. 10*. Dr. Carol thus notes that "intensity maps" are different from "the best dose distribution" and that the former leads to the latter.

Elekta wrongly contends that the '175 Patent uses the term "intensity map" in a different way than it is typically used in reference to Figures 2A-2C, 4A-4C, 7, and 8 of the '175 Patent. *Response, p. 25-26.* Figures 2A-2C in the '175 Patent are characterized as "dose distribution intensity maps for three different radiotherapy plans." Figures 4A-4C in the '175 Patent are characterized as "dose distribution intensity maps for three different radiotherapy plans." *Dkt. 97-11, col. 2, ll. 3-4.* Figure 7 and Figure 8 are each characterized as "a dose distribution intensity map for a radiotherapy plan." *Id., col. 2, ll. 10-13*.

Figures 2A-2C, 4A-4C, 7, and 8 of the '175 Patent show dose distributions, and in describing these figures, the term "intensity map" is modified by the term "dose distribution." In these figures, the intensity of the dosage received at various positions in a patient are given by the lines, each line surrounding an area that receives at least the specified dosage level, in the same way that a topographic map indicates geographic altitude. A POSA would understand that Figures 2A-2C, 4A-4C, 7, and 8 were mapping dose distribution, and that is why these figures were

identified as "dose distribution intensity maps."

Elekta also points to Figures 6A and 6B and suggests wrongly that these are reflective of an "intensity map." They are not. Each figure represents a "three-dimensional treatment field projected on a two dimensional grid." *Dkt. 97-5*, *col. 5, ll. 27*. The objective of the figures is to show the cumulative radiation when two different intensity maps are used for a treatment. In the example, one beam provides 78% of the dose and a second later beam deposits another 78% of dose, thereby yielding a cumulative 156% of the dose. The Figure is thus more akin to a dose distribution, not an intensity map.

More commonly, as in the claims of the '175 Patent, the term "intensity map" refers to the varying fluence levels of radiation administered through a 2D cross-section of a modulated radiation beam. This is reflected in the '175 Patent, which references "intensity maps" determined by "inverse intensity modulated radiation therapy ("IMRT") planning systems." *Dkt. 97-11, col. 1, ll. 13-32*. The '175 Patent notes that these intensity maps, i.e., beam fluence profiles, must be deliverable, typically using an MLC. *Id., col. 1, ll. 13-32*. A POSA would understand that, in the claims of the '175 Patent, in reciting the term "intensity map" – and not "dose distribution intensity map" – the claims were referring to the common usage of the term "intensity map."

4. Defendant's Sur-Reply (3/13/20)

Contrary to BMI's suggestion, *intensity map* appears only in the *claims* of the '175 patent and not in the *claims* of the '283 or '096 patents. Elekta's construction is properly based on its actual usage in the '175 patent as well as the pertinent disclosures (e.g. Figs. 6A, 6B) in the '283 and '096 patents that were incorporated by reference. BMI's construction, on the other hand, is an improper creation based on attorney argument rather than the intrinsic evidence or expert testimony. *See, e.g.,* Reply Br. at 15 (citing only BMI's Opening Brief); *id.* at 18 (stating without any support that "[a] POSA would understand that . . . "intensity map" refer[s] to the common usage of the term 'intensity map'").

BMI points to the statement in the '175 patent that "maps with more intensity changes generally require more segments to deliver," and a statement in the cited prior art defining complexity based on variation in beam intensity. Reply Br. at 16. BMI also points to the statement in the Background of the '175 patent, repeated verbatim in Dr. Carol's declaration submitted during prosecution, that "IMRT[] planning systems attempt to find radiation intensity maps resulting in the best calculated dose distribution for a specific tumor for a specific patient." Reply Br. at 16-17. But neither says anything about whether the *intensity map* represents "dose distribution created by multiple beams" (as Elekta contends) or "radiation

across a defined area" at a single gantry angle (as BMI contends). *Id.* at 15.

BMI otherwise admits that Figures 2A-2C, 4A-4C, 7, and 8 of the patent show dose distribution, with the contour lines indicating dosage levels "like a topographic map indicates geographic altitude." Reply Br. at 17. BMI also admits that each of these figures is identified as a "dose distribution intensity map." BMI further admits that Figure 6B from the '283 patent shows the cumulative radiation (1.56) resulting from two beams (each .78). Reply Br. at 18. BMI nonetheless, and contrary to logic, maintains that these are not "intensity maps." *Id.* at 18.

BMI's interpretations of the intrinsic evidence are not credible, and its attorneys' conclusory and unsupported statements regarding the common usage and intended meaning of *intensity map* be must be rejected.

K. "collimator angle" [21] (Ex. K)

1. Plaintiff's Opening (1/10/20)

[None.]

2. Defendant's Opening (2/14/20)

[21] collimator angle (*'490*) (JCCS at 46) (Ex. J)

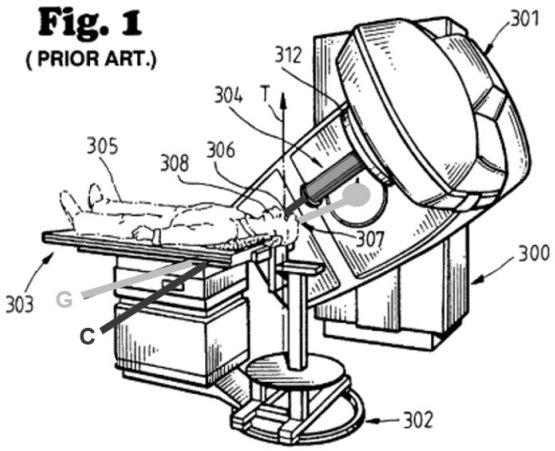
Elekta's Construction	BMI's Construction
collimator angle ('490)	
The angle of orientation of the multileaf collimator (MLC) around the axis of the beam's eye view. The collimator angle is not the gantry angle.	*Plain and ordinary meaning.* If a construction is required, in the alternative: *rotational position of the collimator*

The patent claims and the specification of the '490 patent confirm that the "***collimator angle***" (or collimator rotation angle) is not the gantry angle.

According to the '490 patent, the collimator is rotated to "conform to the shape of the target, or lesion, in the radiation beam's eye view, or beams eye view ('BEV'). . . [where] the beams eye view is a view from the perspective of the opening in the multi-leaf collimator along an axis of the radiation beam." '490 patent at 1:38-46; *see also* Ex. L, limitation 19.1.

The difference between the gantry angle and the collimator angle is explained with reference to Figure 1 of the '619 patent, incorporated by reference into the '490 Patent and shown below (color added). Figure 1 shows rotation of three things in the linear accelerator: the collimator 304, turntable and couch 302, 303, and the gantry 301. The collimator rotates around the axis labeled "C," which

starts at the collimator 304, while the gantry rotates around the axis labeled "G," which starts at circle on the gantry near the number 307. *Id.*



BMI's construction conflates the gantry angle and collimator angle, and improperly expands the scope of this term, permitting rotation of the collimator by the collimator itself or by rotation of the gantry to change the position of the collimator. Because BMI's proposed construction does not reflect the disclosure in the patent and does not provide clarify the rotational angle, it should be rejected.

3. Plaintiff's Reply (2/28/20) "collimator angle" [21]

In Best's Opening, Best stated that *collimator angle* is a term that is subject to its plain and ordinary meaning. That is, the collimator angle is the angle of the collimator in relationship to its rotational position. Best agrees with Elekta that the collimator angle is not the gantry angle. Most of the Response is related to that very point. The fact is that the collimator is like a wheel on an axel and, if you turn

the wheel 15 degrees, you have changed the collimator angle relative to the axle. Thus, the plain and ordinary meaning of collimator angle should apply, and if the Court determines that a construction is necessary, Best's alternative construction of "rotational position of the collimator" should apply.

4. Defendant's Sur-Reply (3/13/20)

Although BMI agrees with Elekta that "the collimator angle is not the gantry angle" (Reply Br. at 19), BMI insists on a proposed construction that allows the gantry angle to be within the scope of the collimator angle. Under BMI's proposed construction, a collimator can be rotated around the axis of the beam's eye view (i.e., the collimator angle), as well as rotated around the patient (i.e., the gantry angle). Consistent with the patent disclosures, Elekta's construction makes it clear that the collimator angle specifies the former and not the latter. BMI's does not.

CONCLUSIONS

For the reasons cited above, Best requests that the Court rejects Defendants' proposed constructions because each of the terms at issue have plain and ordinary meanings to those of skill in the art.

Elekta requests that the Court construe the disputed claim terms according to the canons of claim construction, as explained by Elekta herein.

The Parties jointly request the Court to set a claim construction hearing date and provide the Parties an opportunity to submit or present technology tutorials to the Court.

Respectfully submitted this 18th of March 2020,

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LOCAL RULE 7.1D CERTIFICATION

I hereby certify, pursuant to L.R. 5.1B and 7.1D of the Northern District of Georgia, that the foregoing **PLAINTIFF'S COMPILATION CLAIM CONSTRUCTION BRIEF** complies with the font and point selections approved by the Court in L.R. 5.1B. The foregoing pleading was prepared on a computer using 14-point Times New Roman font.

Dated this 18th day of March 2020.

/s/ Warren J. Thomas

CERTIFICATE OF SERVICE

The undersigned hereby certifies that, on this 18th day of March 2020, the foregoing was electronically filed with the Clerk of Court using the CM/ECF system, which will automatically send e-mail notification of such filing to all attorneys of record.

/s/ Warren J. Thomas